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TAXONOMIC AND DISTRIBUTIONAL NOTES ON EXOTIC *PTECTICUS* AND *SARGUS* SPECIES FROM SOME ITALIAN NATURAL HISTORY MUSEUMS

(DIPTERA, STRATIOMYIDAE)

Recently, we had the opportunity to study some *Ptecticus* and *Sargus* species collected in the Oriental and Australasian regions and deposited in the Italian museums of natural history of Florence, Genoa and Verona. A small collection from the second museum appeared to be especially interesting for the presence of the specimens identified and annotated by Osten-Sacken (1881). C. R. Osten-Sacken (1828-1894) commented, in his "Enumeration of the Diptera of the Malay Archipelago", a total of 21 species of Stratiomyidae (further two species of *Odontomyia* and one of *Microchrysa* were not specified), which were collected by O. Beccari (1843-1920) and L. M. D´Albertis (1841-1901). Both explorers participated to several expeditions to the Sunda Islands, Maluku, New Guinea and Australia and were active collectors of zoological materials for the Genoa Museum (cf. Conci & Poggi 1996). Among the examined specimens of *Ptecticus* and *Sargus,* we distinguish 10 species and can correct the original identifications by Osten-Sacken in some cases; also, we prove one new synonym and record interesting new distributional data.

The examined specimens are deposited in the Museo Zoologico "La Specola", Florence (MZF), Museo Civico di Storia Naturale "Giacomo Doria", Genoa (MSNG) and Museo Civico di Storia Naturale, Verona (MCSNV); typical and comparative material was sent on loan from the Natural History Museum, London (BMNH) and the Bernice P. Bishop Museum, Honolulu (BPBM).

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Ptecticus aurifer (Walker, 1854)

A typical representative of the *P. aurifer* group, characterized by the yellow to brown head and body, vein R_{2+3} distinctly shorter than R_s, strong postcubital vein and conspicuously bicolorous or intensely infuscated wings. It differs from the related *P. melanurus* (Walker) chiefly by the lesser extent of the apical wing infuscation and the dark markings on yellow or pale brown abdominal tergites. It was redescribed in detail by NAGATOMI (1975) who also illustrated the male terminalia. The lectotype (from northern China) was designated by ROZKOŠNÝ (2002).

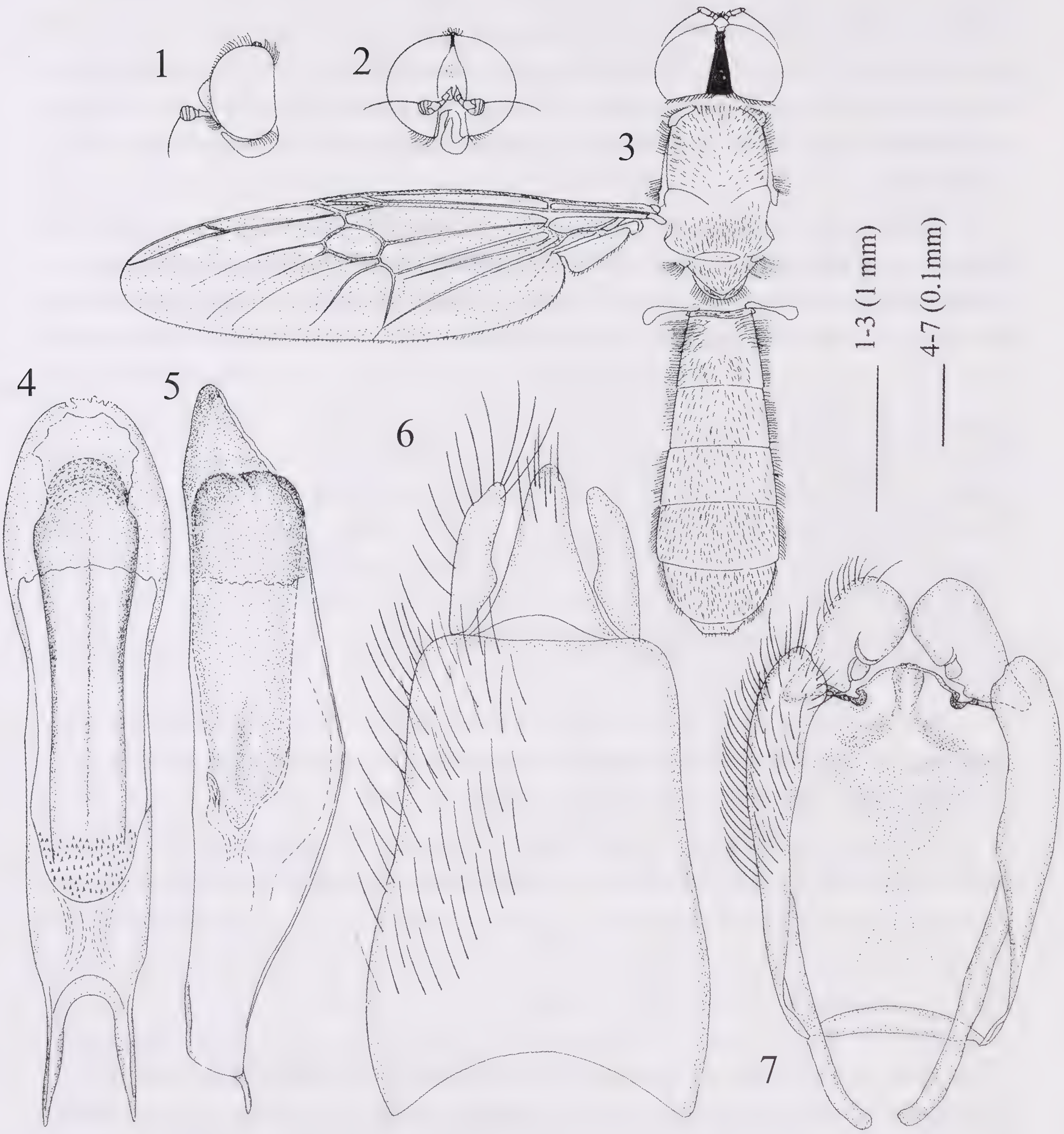
Material examined: China, Fukien, Kuatun, 14.VII.1946, 1 ♂, 1 ♀; 15.VII.1946, 6 ♂♂; 16.VII.1946, 1 ♀; 14.IX.1946, 1 ♂, all leg. Tschung Sen, in MCSNV.

Distribution: eastern parts of the Palaearctic region (Russia, China, Japan) and the Oriental region (India, Indonesia - Kalimantan, Malaysia, Vietnam and Taiwan).

Ptecticus complens (Walker, 1858)
Sargus repensans Walker, 1859, **n. syn.**
Figs. 1-7.

P. complens was recently redefined by ROZKOŠNÝ & DE JONG (2003) as a widely distributed Australasian species related to the Oriental *P. cingulatus* Loew, 1855. It is characterized by the shiny black upper frons, ochre yellow to yellowish-brown thorax and mostly limited dark pattern on the abdomen. The wings are slightly infuscated in the apical half and the legs are predominantly yellow. Usually only the distal two tarsomeres of each leg are somewhat darkened, and with black hairs, and the hind tibia and basitarsus are black. Tarsomeres 2 and 3 of the hind legs are usually, in contrast, yellow. The male terminalia (Figs. 4-7) are species-specific, although they partly resemble those of *P. cingulatus*.

The identity of *P. repensans*, based on the male holotype from Makassar (= Ujung Pandang in Sulawesi) has not been sufficiently clear. OSTEN-SACKEN (1881) examined 9 males and 1 female from Kandari (Sulawesi) and compared them with Walker´s male holotype



Figs. 1-7. *Ptecticus complens* (Walker): 1 - male head in lateral view; 2 - idem in frontal view; 3 - male in dorsal view; 4 - phallic complex in dorsal view; 5 - idem in lateral view; 6 - epandrium and proctiger; 7 - genital capsule.

in London (the specific name is provided with an exclamation mark in Osten-Sacken´s review). We repeated this comparison and came to the same conclusion: the specimens from Ujung Padang and Kandari are, without any doubt, conspecific. Unfortunately, the male terminalia of the holotype were missing and thus only the examination of males from Osten-Sacken´s series could contribute to the knowledge of a real identity of this species. The structures of the male terminalia unambiguously confirmed that *P. repensans* is merely a synonym of *P. complens*.

Members of this population show some differences in comparison with the typical specimens of this chiefly Australasian species, especially in the abdominal pattern. While some specimens, e.g. from New Guinea, show well developed and diffuse brown transverse abdominal spots on tergites 2-5 (or these spots are, at least, replaced by blackish patches of hair), the abdominal tergites of the Sulawesian specimens seem to be uniformly ochre yellow or pale brown, being covered with dense golden yellow hairs. Only careful examination may prove that inconspicuous black hairs are more or less distinct among the yellow hairs on the disc of tergites. Moreover, one male from Kandari shows unusually dark hind tarsomeres that are completely black in dorsal view and distinctly brownish only on the ventral surface of tarsomeres 2 and 3.

Brunetti (1923) also revised the holotype of *P. repensans* deposited in London. The holotype abdomen was probably complete at that time because Brunetti noticed “genitalia black”.

Lindner (1935) recorded 3 specimens of *P. repensans* from Palehleh in his review of the Stratiomyidae from Sulawesi, and mentioned patches of hair on abdominal tergites, though only little distinct. In the same paper he described two new subspecies: *P. repensans annelisae* and *P. repensans monticola*. However, the location of the type specimens is not known and the identity of these taxa cannot be examined. The first subspecies is based on an immature female, the second on two males from a mountain area (Bantimoeroeng), which should differ by the smaller size (about 14 mm) and the colouring of hind tarsomeres, partly or completely yellow on the ventral surface. Following the original descriptions, the synonymy of both these subspecies to *P. complens* is not to be excluded.

Recently, we succeeded in finding a male of *P. complens* also in the Philippines (Palawan). Some differences in colour characters prove a comparatively large variability of the species, corresponding with a vast area of distribution. The fore and mid legs of this male are yellow but with black hairs, beginning from the apex of tarsomere 3. The hind tibia and basitarsus are black, except for the extreme apex of the basitarsus which, in contrast, is white with white hairs, in the same way as the following tarsomeres 2 and 3. Tarsomeres 4 and 5 are brown, with black hairs. The yellow abdomen has a small black central spot in the middle of tergite 3 and not too large transverse oval spots on tergites 4 and 5; also, sternites 5-7 as well as the male terminalia are predominantly brown to black, with black hairs. The large discal area of each abdominal tergite is covered with short and mostly appressed black hairs in addition to more erect and longer yellow hairs which predominate laterally, along the posterior margin of the tergites and on sternites 1-4.

Material examined: holotype of *Sargus repensans* Walker, 1859, ♂ labelled "Type" (round label with a green margin), "Celebes, Makassar, A.R. Wallace". "Mak." (round label), "repensans" in Walker´s handwriting, "Holotype *Sargus repensans* Walker, det. J.E. Chainey 1982", in BMNH. Indonesia: Celebes (= Sulawesi), Kandari, IV.1874, 5 ♂♂, 1 ♀, O. Beccari, in MSNG; N. Guinea, Fly River, 1876-1877, 1 ♂, L. M. D´Albertis, in MSNG. Philippines: Palawan, Mt. Beaufort, 17.IV.1968, 1 ♂, M. D. Delfinado, in BPBM.

Distribution: Philippines (Palawan), Indonesia (Sulawesi, Maluku, Irian Jaya), Papua New Guinea (incl. Normanbay Is. and Woodlark Is.) and Australia. Both localities recorded here, i.e. Sulawesi and the Philippines, thus represent the westernmost collecting sites of the species.

Ptecticus danielsi Rozkošný & De Jong, 2003

The upper frons and vertex are shiny black. Vein R_{2+3} originates at the anterior cross vein, the discal cell is relatively short, with a relatively long and predominantly arched upper posterior margin. The black hairs on the orange posttegula are diagnostic. The hind tibia and the whole of hind tarsi are black; the abdomen has dark transverse bands on tergites 2-5. The gonostylus is markedly tapered in the distal half (see Rozkošný & De Jong 2003). The examined male is mentioned by Osten-Sacken (1881) as a female (!) of *Sargus quadrifasciatus* (Walker). Daniels (1979) misinterpreted *P. complens* and the species treated by him under this name was therefore described as *P. danielsi*.

Material examined: Maluku, Ternate, II.1875, 1 ♂, O. Beccari, in MSNG.

Distribution: *P. danielsi* is known from the western (Irian Jaya) as well as eastern part (Papua New Guinea) of New Guinea only. According to the new record presented here its distributional area extends to Maluku as well.

Ptecticus ferrugineus (Doleschall, 1859)

Figs. 8-11.

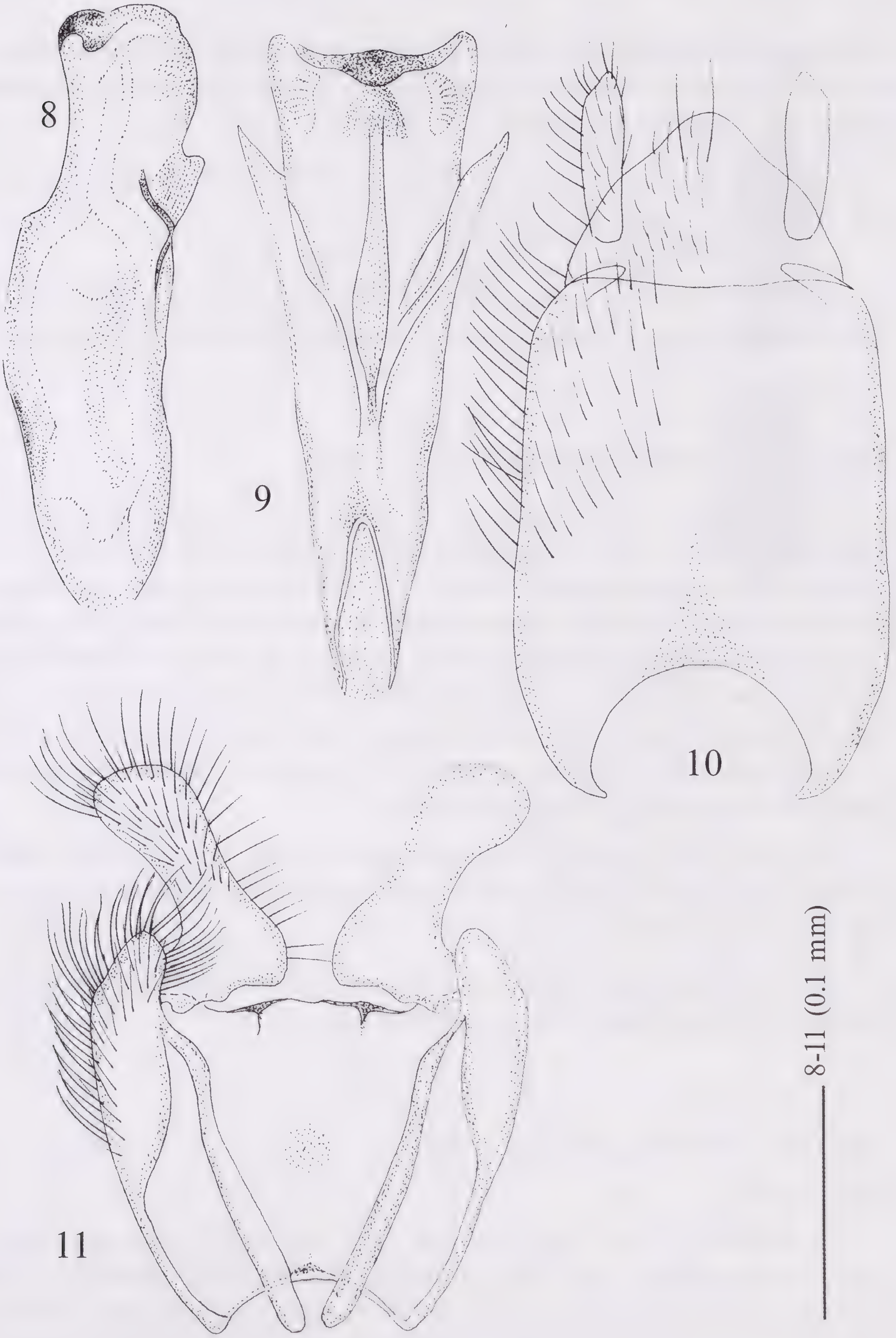
A predominantly ochre-yellow species with, usually, only the upper frons and vertex black. Vein R_{2+3} originates at the anterior cross vein, the stigma is dark brown and the upper posterior margin of the discal cell is arched rather than sinuate. Hairs on the posttegulae are yellow. The last three tarsomeres on the fore and mid legs are usually brownish, whereas the hind tibia and the hind tarsus are always entirely dark brown to black. The transverse abdominal bands are barely distinct, developed at most as transverse patches of hair consisting of short black pile or completely absent. The male gonostylus is flat and lacks any outer projection (Fig. 11). The redescription of the species was given by Rozkošný & De Jong (2003).

Material examined: Indonesia, Irian Jaya, Dorei Hum, II.1875, 1 ♂ , O. Beccari, in MSNG. This same male was identified by Osten-Sacken (1881) as *P. rogans* Walker, 1858.

Distribution: Indonesia (Maluku, Irian Jaya) and Papua New Guinea.

Ptecticus melanurus (Walker, 1848)

A well known species, which is characterized by bicoloured wings and a blackish tip of the abdomen. The lectotype of this species was



Figs. 8-11. *Ptecticus ferrugineus* (Doleschall), male terminalia: 8 - phallic complex in ventrolateral view; 9 - idem in dorsal view; 10 - epandrium and proctiger; 11 - genital capsule.

designated by ROZKOŠNÝ (2002) and a synonymy of *P. leoninus* (Rondani, 1875) was confirmed by MASON & ROZKOŠNÝ (in press), who also illustrated the male terminalia.

Material examined: Malaysia, Genting Highlands, 17.IX-5.X.1995, 1 ♀, A. Arcara, in MZF.

Distribution: India, West Pakistan, Nepal, Thailand, West and East Malaysia, Singapore and Indonesia (Sumatra, Kalimantan).

Ptecticus quadrifasciatus (Walker, 1869)

A yellowish brown species with metallic bluish-black upper frons and vertex. The posttegulae are provided with blackish hairs, the legs are predominantly yellow but the hind tibia and basitarsus are dark brown to black, whereas hind tarsomeres 2-5 are white. Dark transverse abdominal bands become broader on tergite 5, where only the posterior margin is narrowly yellow; the following segments are entirely black. The male terminalia have simply leaf-shaped gonostyli. A redescription, including figures of the male terminalia, was published by ROZKOŠNÝ & DE JONG (2001).

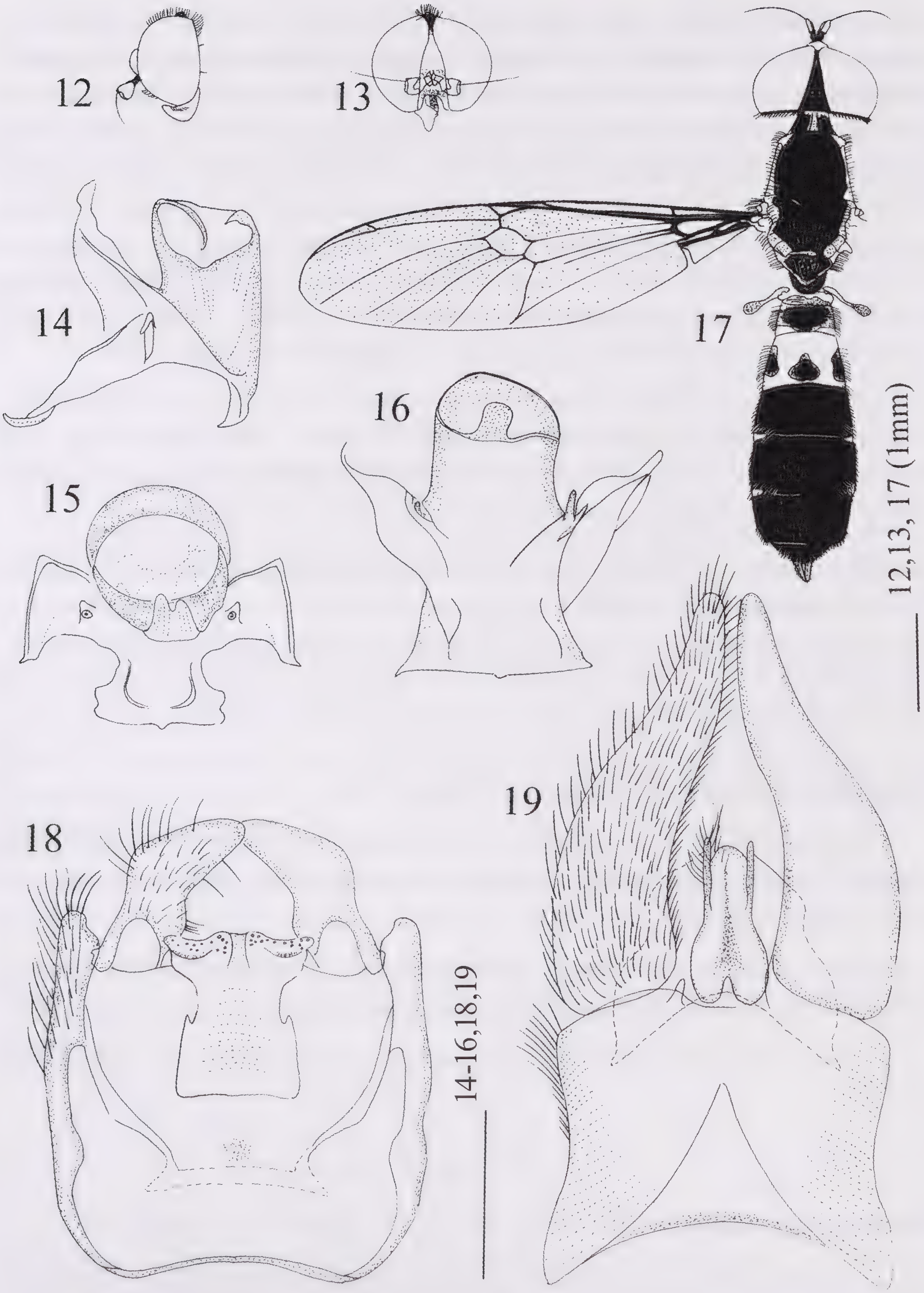
Material examined: Indonesia: Irian Jaya, Dorei Hum, II.1875, 1 ♂, O. Beccari, in MSNG, correctly identified already by OSTEN-SACKEN (1881).

Distribution: Indonesia (Irian Jaya), Papua New Guinea, Bismarck Archipelago, Australia (Queensland).

Ptecticus remeans (Walker, 1860)

Figs. 12-19.

A predominantly black species with blackish infuscated wings. Legs are also black, and only the tibiae and basitarsi of the fore and mid legs may be yellow to pale brown. The whitish to yellow abdominal pattern is usually limited to a bifid spot on tergite 2 and pale posterior corners of tergites 2-5. The male terminalia (Figs. 14-16, 18-19) are species-specific, with elongated and slender cerci. The species was



Figs. 12-19. *Ptecticus remeans* (Walker): 12 - male head in lateral view; 13 - idem in frontal view; 14 - phallic complex in lateral view; 15 - idem in postero-dorsal view; 16 - idem in dorsal view; 17 - male in dorsal view; 18 - genital capsule; 19 - epandrium and proctiger.

redescribed by ROZKOŠNÝ & KOVAC (2000), who revised the two male syntypes from Makassar (=Ujung Pandang, Sulawesi) and illustrated the male terminalia. OSTEN-SACKEN (1881) examined 15 ♂♂ and 1 ♀, and all these specimens really belong to this species. We examined 9 ♂♂ and can state a large variability in size (body length from 12.0 to 21.0 mm) and wing length (from 11.0 to 18.6 mm). The pale pattern on tergite 2 may be as extensive as in Fig. 17, but is sometimes reduced to a small bifid spot at the anterior margin of the tergite. The fore tibia and basitarsus are often darkened along the anterior surface and pale spots at posterior corners of tergites 3-5 may also be reduced.

In addition to Walker´s and Osten-Sacken´s records from Sulawesi, LINDNER (1935) mentioned this species from Bantimoeroeng and ROZKOŠNÝ & KOVAC (2000) from Patunuang and Samanga, in the same island. The Philippines were added by WOODLEY (2001).

Material examined: Indonesia: Sulawesi, Kandari, IV.1874, 9 ♂♂, O. Beccari, in MSNG.

Distribution: Indonesia (Sulawesi) and the Philippines.

Ptecticus tricolor Wulp in de Meijer, 1904

A species with red tergites 2-4 and predominantly black hind legs (except for the basal half of femur). The male terminalia were figured by ROZKOŠNÝ & KOVAC (1996).

Material examined: India, Assam, Kamrup Distr., Guwahati, 350 m, 5.VII.1995, 1♂, L. Bartolozzi & K. Werner, in MZF.

Distribution: India, Indonesia (Java, Sumatra), Malaysia, Thailand.

Sargus goliath (Curran, 1927)

A large (20.0-22.0 mm) and shiny metallic species with conspicuously infuscated wings. Scutum with a violet shade, abdomen with a green shade. Legs dark, only the dorsal surface of the fore and mid tibia somewhat paler. Body pile white, postocular fringe on head well developed, vein R_{2+3} arising well beyond anterior crossvein.

This conspicuous but little known species was described on the basis of the male holotype from Yen-ping in China. We examined a female from the same area and came to the conclusion that it is markedly similar to *Sargus grandis* (Ôuchi, 1938) based on a specimen from Tienmushan (China: Chekiang Province). Unfortunately, this potential synonymy could not be confirmed by a study of the type material.

Material examined: China, Fukien, Kuatun, 22.VI.1946, 1 ♀, Tschung Sen, in MCSNV.

Distribution: China.

Sargus mactans (Walker, 1859)

A medium-sized (10.0-12.0 mm), dark and shiny metallic species with hyaline wings and predominantly yellow legs. Only the hind coxa and the basal 1/3-1/2 of the hind tibia are black. The identity of this species was recently discussed by HAUSER & ROZKOŠNÝ (1999) who illustrated the male terminalia and compared them with those of the related *S. metallinus* Fabricius, 1805. The examined males fully confirmed the present concept of this species. It should be mentioned that *S. mactans* is based on the male holotype from Sulawesi (Makassar = Ujung Pandang).

Material examined: Indonesia, Sulawesi, Kandari, IV.1874, 2 ♂♂ and 1 ♀, O. Beccari, in MSNG.

Distribution: Japan, Pakistan, India, Sri Lanka, Malaysia, Indonesia (Sumatra, Kalimantan, Sulawesi), Papua New Guinea, Australia.

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ABSTRACT

A limited number of some Oriental and Australasian *Ptecticus* and *Sargus* species from some natural history museums in Italy was examined and the study resulted in the distinguishing of ten species. *Ptecticus repensans* (Walker) is proved as a new synonym of *P. complens* (Walker) and *Sargus grandis* (Ôuchi) is preliminarily proposed as a synonym of *S. goliath* (Curran). *P. complens* (Walker) is recorded from Sulawesi and the Philippines for the first time and Maluku is defined as a new westernmost collecting site of *P. danielsi* Rozkošný & De Jong. The original identifications by OSTEN-SACKEN (1881) were corrected in the cases of *Sargus quadrifasciatus* Walker (partly), *S. repensans* Walker and *S. rogans* Walker.

RIASSUNTO

Note tassonomiche e corologiche su specie esotiche di *Ptecticus* e *Sargus* di alcuni musei italiani di storia naturale (Diptera, Stratiomyidae)

È stato studiato un numero limitato di esemplari di specie di *Sargus* e *Ptecticus* orientali e dell'Australasia depositati nei musei di storia naturale di Firenze, Genova e Verona; la revisione ha portato alla identificazione di dieci specie.

Ptecticus repensans (Walker) è un nuovo sinonimo di *P. complens* (Walker) mentre *Sargus grandis* (Ôuchi) è proposto preliminarmente quale sinonimo di *S. goliath* (Curran). *P. complens* (Walker) è segnalato per la prima volta di Sulawesi e delle Filippine. Maluku rappresenta la località più occidentale di raccolta per *P. danielsi* Rozkošný & De Jong. Le identificazioni originali di OSTEN-SACKEN (1881) sono state corrette nel caso di *Sargus quadrifasciatus* Walker (in parte), *S. repensans* Walker e *S. rogans* Walker.